

WhiteWings®

ASSEMBLY INSTRUCTIONS

FLIGHT INSTRUCTIONS

GUIDELINE FOR WHITEWINGS COMPETITION

INTRODUCTION TO PAPER PLANE DESIGN

HOW TO BUILD "WHITEWINGS"



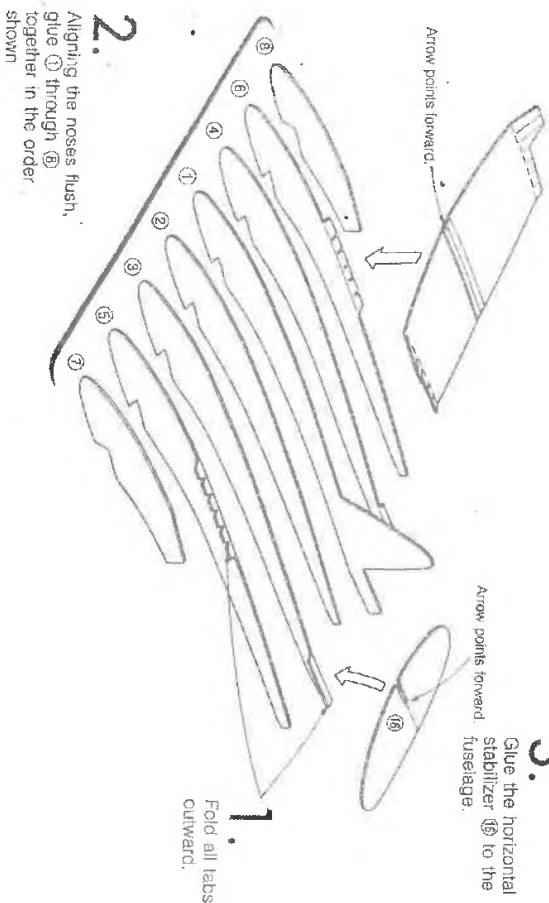
HISTORY OF JET FIGHTERS SERIES

5. Glue the middle part of the main wing firmly to the fuselage.

4. Assemble the middle part of the wing with ⑨, ⑩, ⑪, ⑫ and ⑬ following the assembly instructions 0.1.....7. on page 64 starting with step 0. The dihedral angle, however, must be 5°. Be careful as the part numbers for the main wing are different from those listed on page 64.

3. Glue the horizontal stabilizer ⑭ to the fuselage.

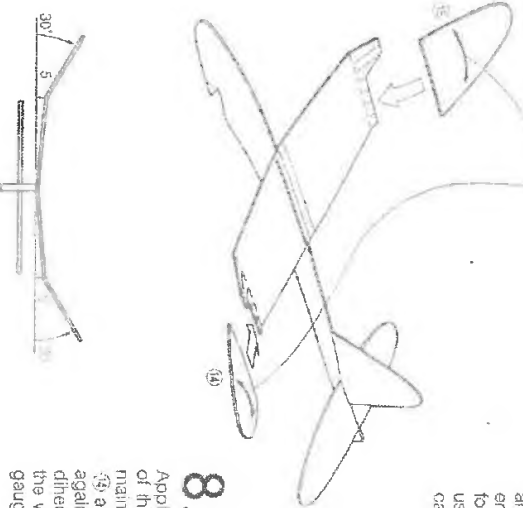
1. Fold all tabs outward.



to insure 30° wing dihedral angle is 5°

Camber the wing tips carefully.

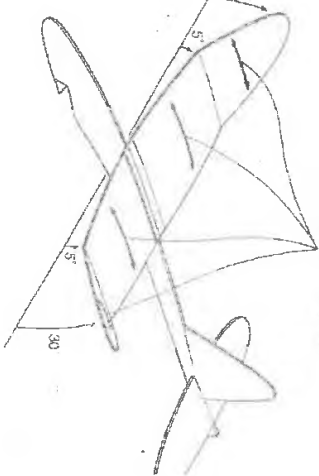
7. Camber both wing tips ⑭ and ⑮. Fold tabs on both ends of the main wing to form a 30° dihedral angle using the gauge and then camber them as well.



8. Apply glue to the top surface of the folded tabs of the main wing. Attach wing tips ⑭ and ⑮ respectively. Once again, check that the dihedral angle at the tip of the wing is 30° using the gauge.

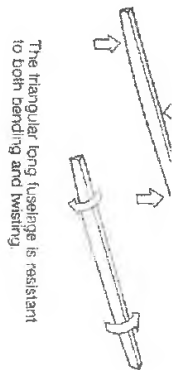
Camber the wings carefully.

- **FINISHING TOUCHES**
- Give the finishing touches to the plane after it dries thoroughly.
- 9. Camber the main wings carefully with your fingers.
- 10. Using the dihedral angle gauge make sure the dihedral angle for the main wing is 5° and for the wing tips 30°.
- 11. View the plane from both the front and the back and straighten any warps or bends in the fuselage and the wings.

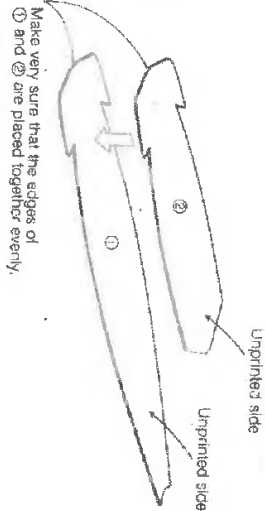


- **TEST FLIGHT**
- Test fly the plane according to the Test Flight instructions for Regular Planes on page 11 to 13

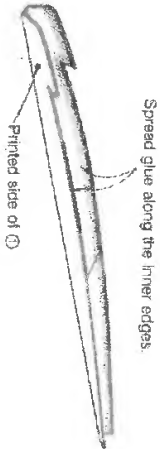
airplanes. That is why I have spent some time researching and designing a fuselage that accommodates the body construction of a large paper airplane. The result of these efforts was the invention of the triangular long fuselage which is resistant to bending and twisting. Its aerodynamic performance makes it worthy of the Whittewings' name.



1. Make firm creases along the dashed lines of fuselage pieces (1) & (2) using a common ordinary table knife (blunt knife) and a ruler as a guide. Avoid cutting through the dashed lines.



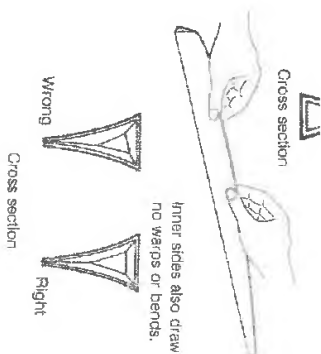
2. Spread glue evenly over the entire surface of printed side of (2). Apply (2) to the unprinted side of (1). Make very sure that the edges of (1) and (2) that form the plane nose are placed together evenly, or flush, as shown in the diagram.



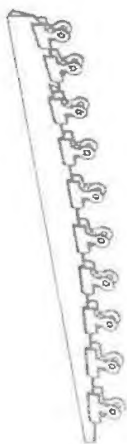
3. Before the glue dries, fold (1) and (2) along the creased dashed lines having (3) face inward. Then spread glue along the inner edges as shown.

4. The triangular long fuselage is resistant to both bending and twisting.

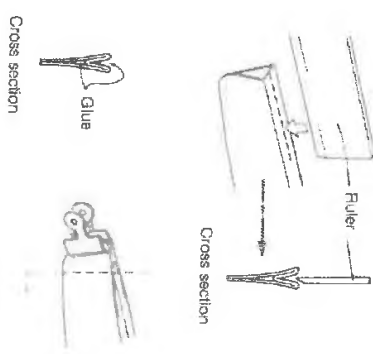
5. View the fuselage closely from both the front and back carefully straighten any warps or bends before the glue dries. Look inside of the fuselage to make sure the inner side also draw no warps or bends.



6. Let the fuselage dry completely by attaching clips or clothespins on the glued edges as shown. It takes at least 2 hours to dry.



7. Make a groove along the thick dashed line at the plane nose by carefully pressing down upon it with a ruler. The groove must be deeper at the tip of the plane nose than at any other part. The remaining area of the top of the fuselage, except for the thick dashed line, should remain flat.



8. Put glue into the groove at the tip of the plane nose and both inner sides of the plane nose and glue together. Let it dry thoroughly (at least 2 hours) using a clip to keep the tip of the nose in place.



7. Place a ruler along each of the outer lines of the main wing and bend each side up individually to make a dihedral angle of approximately 5° for both sides of the main wing.

4. Fold both tabs of the horizontal stabilizer (7) as shown.

3. Glue (4) to the underside of (3). When dry, cut off the protruding portions.

Arrow points forward.

Arrows point forward.

Outer lines for the dihedral angle

8. Glue the main wing (3) + (4) firmly to the gluing position for the main wing on the fuselage. Make sure to align the center line of the main wing with that of the fuselage.

2. Cut the main wing (3) along the solid lines up to the dashed lines. Place a ruler along the dashed line and bend the resulting strips slightly upward.

Gluing position for the horizontal stabilizer

5. Glue the vertical stabilizers (6) and (8) to the tabs of the horizontal stabilizer (7) aligning the arrows on (6) and (8) with the folded tab lines of (7).

1.

Gluing position for the main wing

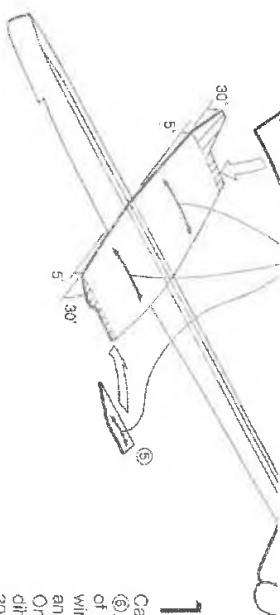
Assemble the fuselage following the assembly instructions for the triangular fuselage on pages 42 and 43.

6.

Glue the horizontal stabilizer (7) + (8) + (9) firmly onto the gluing position for the horizontal stabilizer on the fuselage top. Make sure to align the center line of the fuselage with that of the horizontal stabilizer.

9.

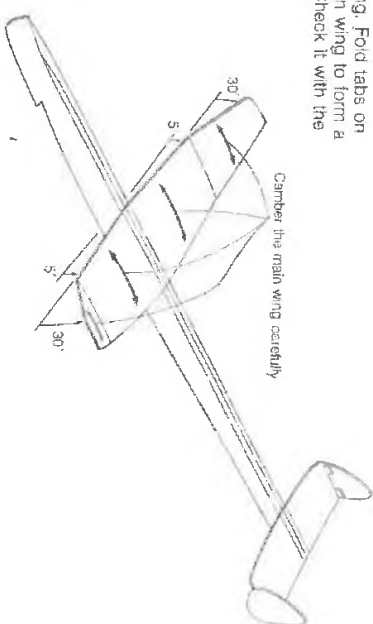
Camber the main wing. Fold tabs on both ends of the main wing to form a 30° dihedral angle. Check it with the gauge.



10.

Camber both wing tips (5). Apply glue to the top of the folded tabs of the wing and attach the wing and (5) respectively as shown. Once again, check that the dihedral angle at the wing 30° using the gauge.

Camber the main wing carefully



FINISHING TOUCHES

- Give the finishing touches to the plane after it dries thoroughly.
- 11. Make the camber on the main wing even with your fingers.
- 12. Using the dihedral angle gauge, make sure the dihedral angle of the main wing is 5° and for the wing tips 30°.
- 13. View the plane from both the front and the back and straighten any warps or bends in the fuselage and the wings.

TEST FLIGHT

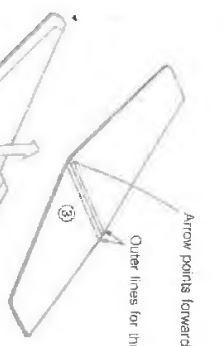
- Test fly the plane according to the test flight instructions for Regular Planes on pages 11 to 13.

7. Place a ruler along the outer lines of the main wing and bend each side up individually to make a dihedral angle of approximately 15° for both sides of the main wing.

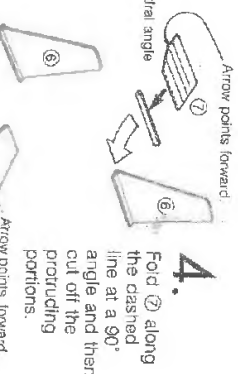
5. Fold the tab of the vertical stabilizer (3). Glue (7) to the other side of the vertical stabilizer (3).

6. Glue the vertical stabilizer (3 + 7) to the gluing position for the vertical stabilizer on the fuselage. Make sure to align the folded tab line of the vertical stabilizer with the center line on the fuselage.

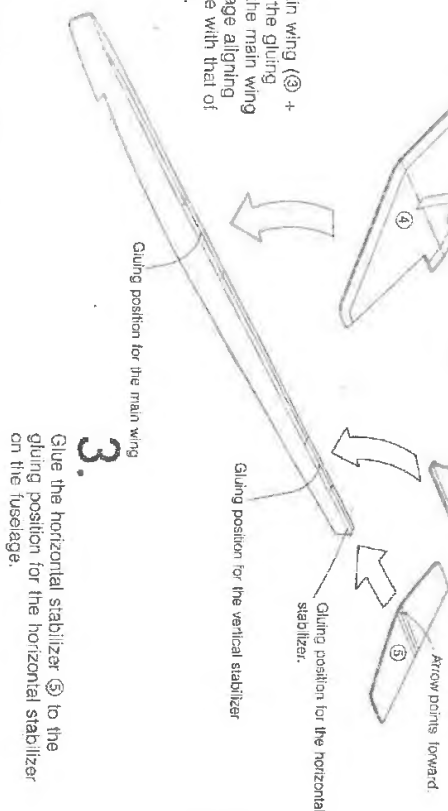
2. Glue (4) to the underside of (3) aligning their center lines. When dry, cut off the protruding portions.



4. Fold (7) along the dashed line at a 90° angle and then cut off the protruding portions.

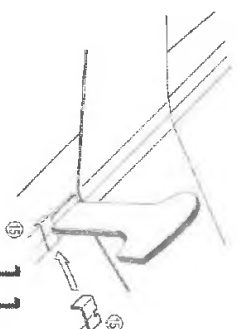


8. Glue the main wing (3 + 4) firmly to the gluing position for the main wing on the fuselage aligning its center line with that of the fuselage.



1. Assemble the fuselage following the assembly instructions for the triangular fuselage on pages 42 and 43.

remove it after the glue dries.



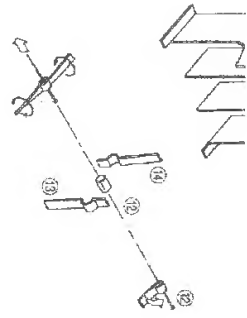
10. Glue the engine (10 + 9 + 11) to the gluing positions for the engine on the fuselage. Then fold (9) as shown and glue (9) to the fuselage top so that it surrounds the base of the engine as shown.

After inserting the pin with the propeller into the back end of the engine, trim the propeller blades so that both blades are of equal length. Make sure the propeller revolves smoothly.

11-4

Curve the end of both propeller blades (13 and 14) to fit around the hub as shown. Wrap the blades around the hub and glue on.

11-3



To make the propeller hub (the part which the propeller shaft passes through), wrap the ribbon (6) around the pin applying glue on the ribbon. After making sure that the hub around the pin revolves smoothly, pull the pin out temporarily.

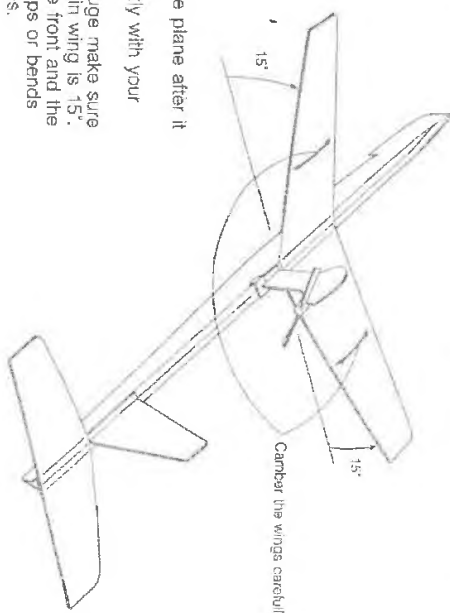
11-2

FINISHING TOUCHES

- Give the finishing touches to the plane after it dries thoroughly.
- 12. Camber the main wing slightly with your fingers.
- 13. Using the dihedral angle gauge make sure the dihedral angle of the main wing is 15°.
- 14. View the plane from both the front and the back and straighten any warps or bends in the fuselage and the wings.

TEST FLIGHT

- Test fly the plane according to the Test Flight instructions for Regular Planes on pages 11 to 13.



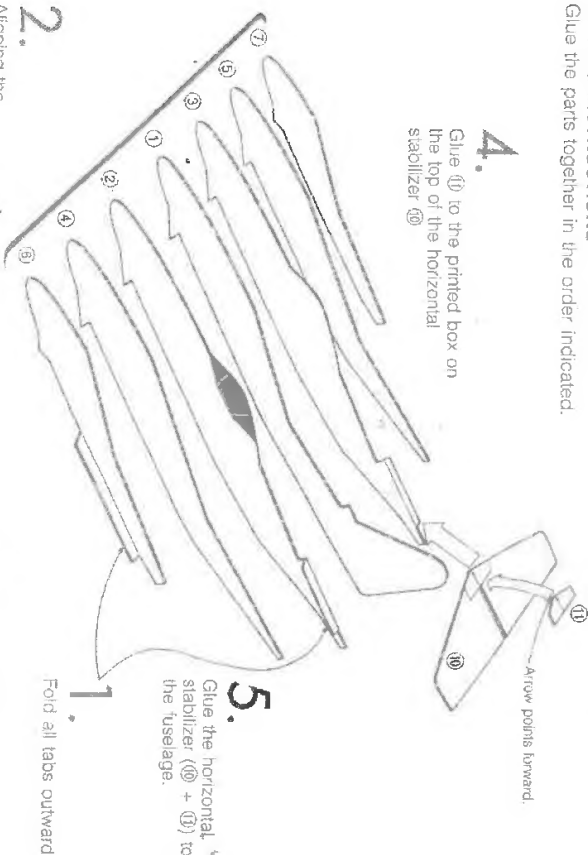
and corners. These tabs are useful in a sweatbox wing with straight wing at some speed had been carried forward and put into practical use in the Me-262 prior to any other country.

GLUING INSTRUCTIONS

Glue the parts together in the order indicated.

4.

Glue (1) to the printed box on the top of the horizontal stabilizer (10).



5.

Glue the horizontal stabilizer (10) + (11) to the fuselage.

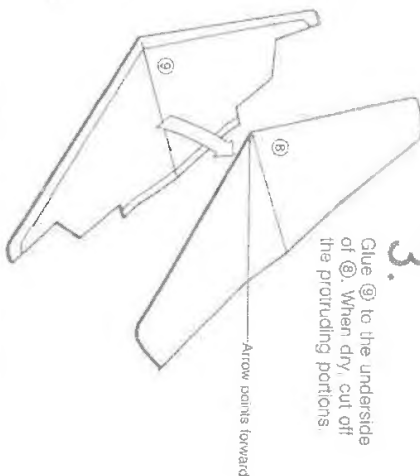
1. Fold all tabs outward

6.

Placing a ruler along the center line of the main wing (8) + (9), make a dihedral angle of approximately 10°. Then, glue the main wing to the fuselage aligning their center lines. (Refer to [NOTE].)

[NOTE]

In the case of a low wing plane, the fuselage prevents you from finding the printed center line of a main wing. In order to align the center line of both a main wing and a fuselage, therefore, take the following measure. Make pinholes at both ends of the center line on the top side of the main wing. Turn the main wing over. Link the pinholes together with a ruler and draw a center line on the unprinted side of the main wing.



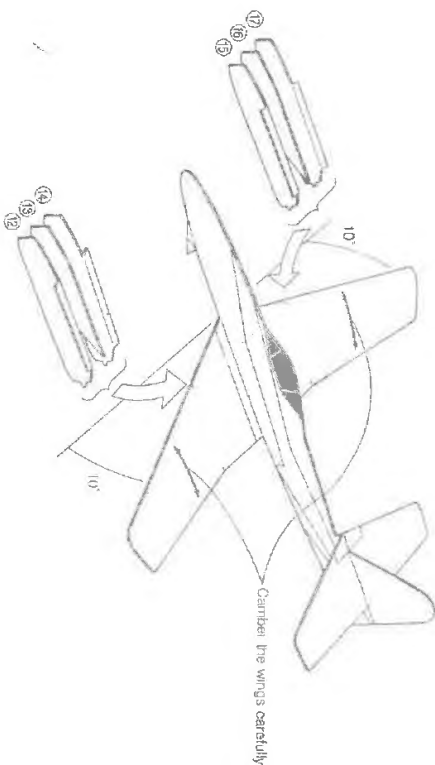
3.

Glue (3) to the underside of (8). When dry, cut off the protruding portions.

Arrow points forward

7.

After folding the tabs, glue together (12), (13) and (14) to make the left engine and (15), (16) and (17) for the right engine.



8.

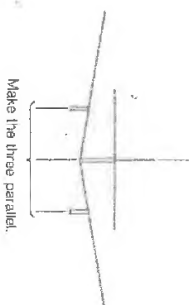
Using the engine installation lines on the underside of the main wing as a guide, glue the two engines to the underside of the main wing.

FINISHING TOUCHES

- Give the finishing touches to the plane after it dries thoroughly.
- 9. Camber the outer sides of the main wing from the engines carefully with your fingers.
- 10. Place the dihedral angle gauge at the underside of the main wing and make sure the dihedral angle for the main wing is 10°.
- 11. Fix the engines to ensure the vertical fuselage line and the engines are parallel when viewed from the front.
- 12. View the plane from both the front and the back and straighten any warps or bends in the fuselage and the wings.

TEST FLIGHT

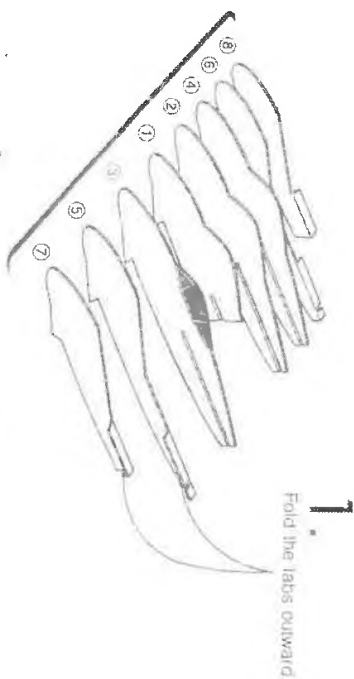
- Test fly the plane according to the Test Flight instructions for Regular Planes on pages 11 to 13.



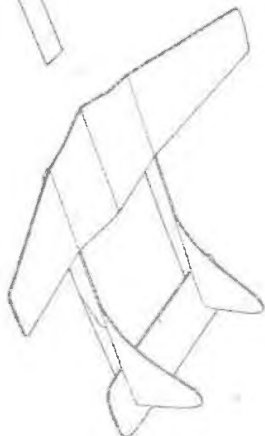
Make the three parallel.

GLUING INSTRUCTIONS

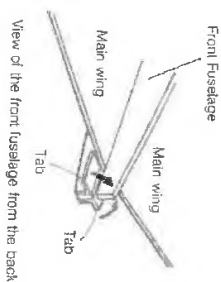
Glue the parts together in the order indicated.



2. Aligning the noses flush, glue ① through ③ together for the front fuselage in the order shown.

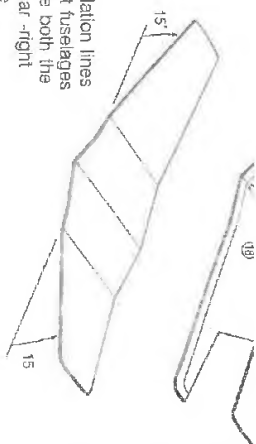


12. Referring to the figure, glue the rear tabs of the front fuselage to close the slit.



11. Insert the main wing into the end of the slit of the front fuselage. Glue the front tab of the front fuselage to the underside of the main wing to fix them. As the fuselage prevents you from finding the center line of the main wing, install the fuselage using the center guidelines on the main wing.

9. Using the installation lines for left and right fuselages as a guide, glue both the rear-left and rear-right fuselages to the underside of the main wing.



8. Placing a ruler along the installation lines for left and right fuselages on the main wing, make a dihedral angle of approximately 15° for both sides of the main wing. (Use a dihedral angle gauge.)

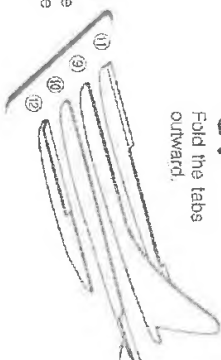
10. Bridging the horizontal stabilizer ⑧ between left and right rear fuselages, glue it to the fuselages.

7. Aligning the noses flush, glue ⑩ through ⑬ together for the rear-right fuselage in the order shown.



6. Fold the tabs outward.

5. Aligning the noses flush, glue ⑭ through ⑯ together for the rear-left fuselage in the order shown.



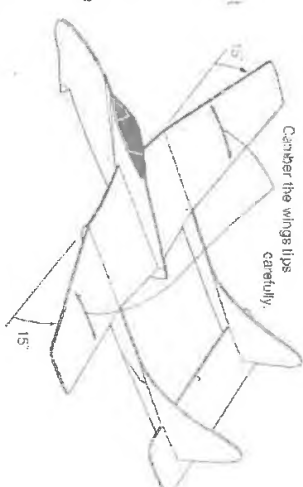
4. Fold the tips outward.

FINISHING TOUCHES

- Give the finishing touches to the plane after it dries thoroughly.
- Camber the wing tips carefully with your fingers.
- Using the dihedral angle gauge, make sure the dihedral angle of the outer of the main wing tips are both 15°.
- View the plane from both the front and the back and straighten any warps or bends in the fuselage and the wings.

TEST FLIGHT

- Test fly the plane according to the Test Flight instructions for Regular Planes on pages 11 to 13.



a characteristic feature of P-80.
T-33 Jet Trainer. Plane which is now being used is the two-seat plane based upon P-80.

GLUING INSTRUCTIONS

Glue the parts together in the order indicated.

7.
Glue the horizontal stabilizer ⑫ to the fuselage.

8.
Glue ⑬ to the printed box on the top of the horizontal stabilizer ⑫. Arrow points forward.

1.
Fold all tabs outward.

2.
Aligning the noses flush, glue ① through ⑦ together in the order shown.

9.
Place a ruler along the center line of the main wing (⑧ + ⑨), make a dihedral angle of approximately 13° for both sides of the main wing. Then, glue the main wing to the fuselage aligning their center lines. (Refer to [NOTE] on page 48.)

4.
Glue parts ⑩ and ⑪ respectively to the inside of the tip tanks of the main wing ⑧.

5.
Bend the tip tanks of ⑨ (the backing of the main wing) downward 90° (For this P-80, it is easier not to cut ⑨ out with an extra 2 - 3mm margin along the front and back lines.)

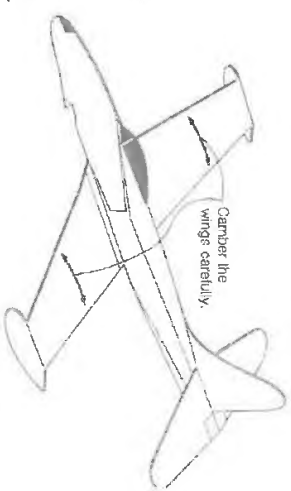
6.
Spread glue entirely on the printed side of ⑨ including the tip tanks. Then, glue ⑨ to the underside of the main wing ⑧ and let it dry thoroughly.

FINISHING TOUCHES

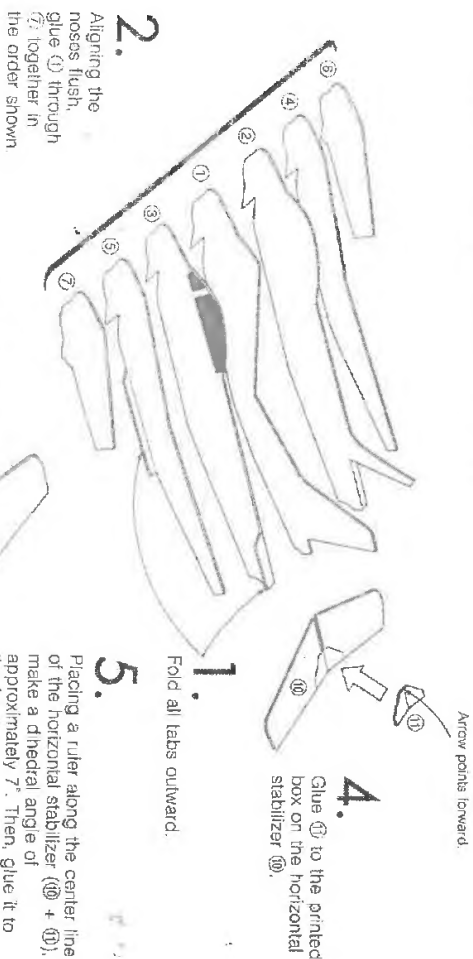
- Give the finishing touches to the plane after it dries thoroughly.
- 10. Camber the main wing slightly with your fingers.
- 11. Place the dihedral angle gauge at the underside of the main wing and make sure the dihedral angle for the main wing is 13°.
- 12. Make sure the tip tanks are bent at 90° to the main wing.
- 13. View the plane from the front and the back and straighten any warps or bands in the fuselage and the wings.

TEST FLIGHT

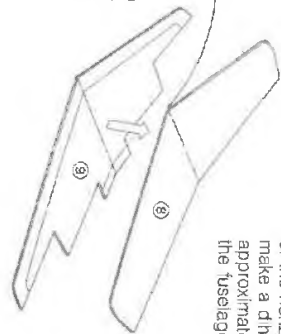
- Test fly the plane according to the Test Flight instructions for Regular Planes on pages 11 to 13.



GLUING INSTRUCTIONS Glue the parts together in the order indicated.



6. Place a ruler along the center line of the main wing (8) + (9) and make a dihedral angle of approximately 10° using the dihedral angle gauge. Then, glue the main wing firmly to the fuselage. (Refer to [NOTE] on page 48.)



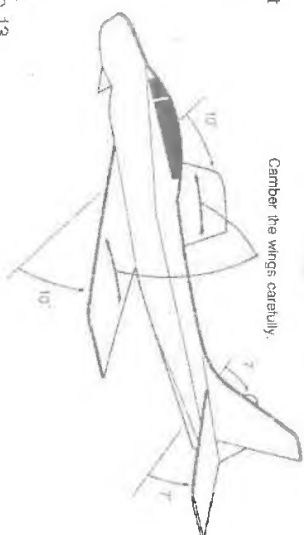
3. Glue (8) to the underside of (9). When dry, cut off the protruding portions.

Camber the wings carefully.

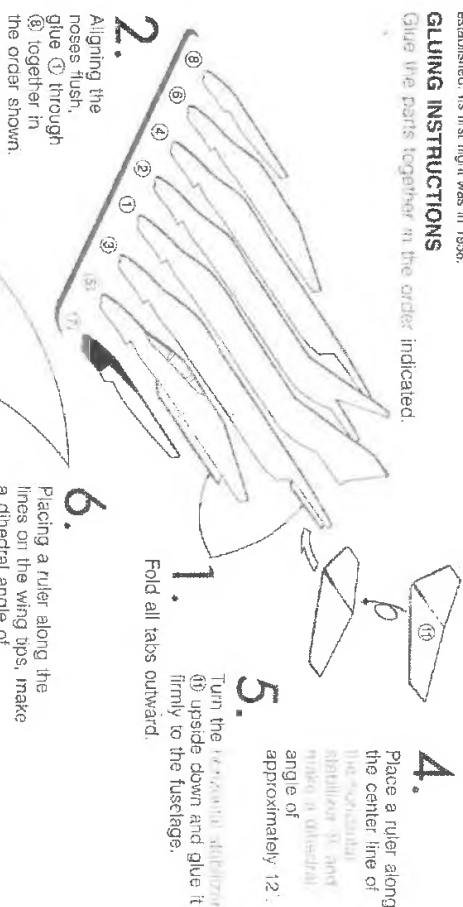
- Give the finishing touches to the plane after it dries thoroughly.
- 7. Camber the main wings carefully with your fingers.
- 8. Using the dihedral angle gauge, make sure the dihedral angle for the main wings are 10° and for the horizontal stabilizer 7°.
- 9. View the plane from both the front and the back and straighten any warps or bends in the fuselage and wings.

TEST FLIGHT

- Test fly the plane according to the Test Flight instructions for Regular Planes on pages 11 to 13.



established, its first flight was in 1938. **GLUING INSTRUCTIONS** Glue the parts together in the order indicated.

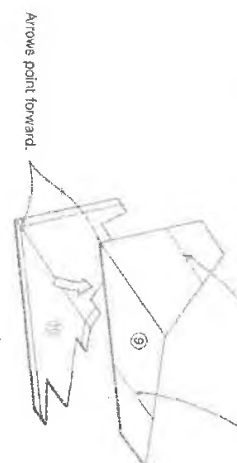


2. Aligning the noses flush, glue (1) through (8) together in the order shown.

4. Place a ruler along the center line of the horizontal stabilizer (10) and make a dihedral angle of approximately 12°.

5. Turn the horizontal stabilizer (10) upside down and glue it firmly to the fuselage.

6. Placing a ruler along the lines on the wing tips, make a dihedral angle of approximately 23°. Then, glue the main wing firmly to the fuselage aligning their center lines. (Refer to [NOTE] on page 48.)



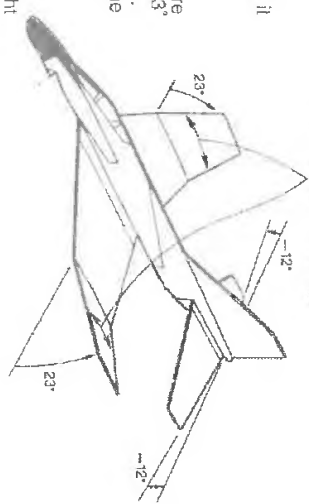
3. Glue (8) to the underside of (9). When dry, cut off the protruding portions.

Camber the wing tips carefully.

- Give the finishing touches to the plane after it dries thoroughly.
- 7. Camber the wing tips carefully with your fingers.
- 8. Using the dihedral angle gauge, make sure the dihedral angle for the wing tips are 23° and for the horizontal stabilizer minus 12°.
- 9. View the plane from both the front and the back and straighten any warps or bends in the fuselage and wings.

TEST FLIGHT

- Test fly the plane according to the Test Flight instructions for Regular Planes on page 11 to 13.



MANHATTAN took a long time to make it practical, the MANHATTAN was completed and became the first and most successful STUTOL fighter in the world.

GLUING INSTRUCTIONS

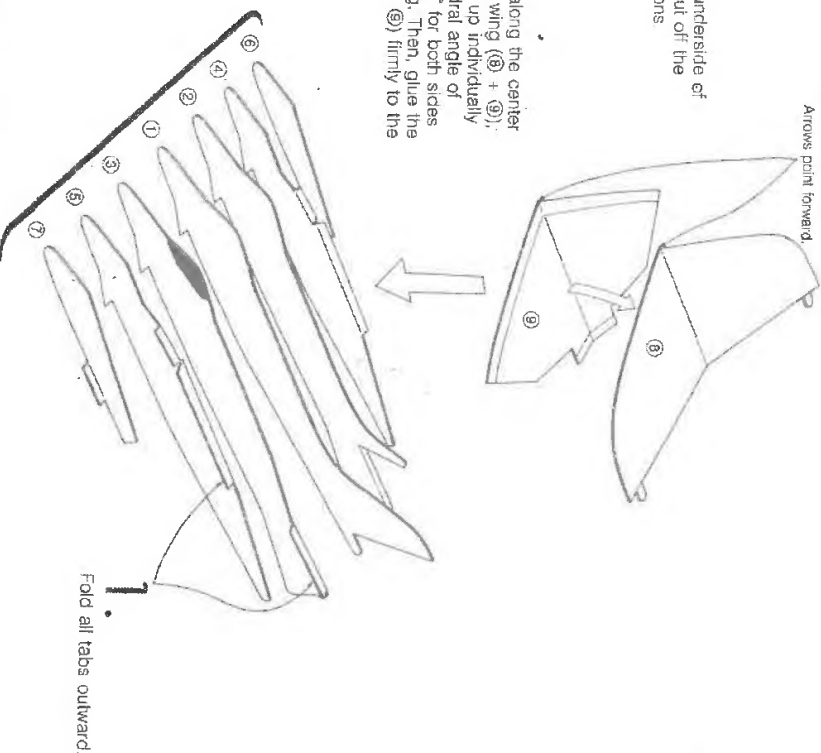
Glue the parts together in the order indicated.

3.

Glue ⑧ to the underside of ⑨. When dry, cut off the protruding portions.

6.

Placing a ruler along the center line of the main wing (⑧ + ⑨), bend each side up individually to make a dihedral angle of approximately 5° for both sides of the main wing. Then, glue the main wing (⑧ + ⑨) firmly to the fuselage.



2.

Aligning the noses flush, glue ① through ⑦ together in the order shown.

1. Glue ⑪ to the printed box on the top of the horizontal stabilizer ⑩.

5.

Glue the horizontal stabilizer (⑩ + ⑪) to the fuselage.

7.

Roll up ⑫ with your fingers in advance keeping the printed side of ⑫ facing outward. Then glue ⑫ to the tab of the lower part of the fuselage aligning the center line of ⑫ with the center of the fuselage.

8.

Glue both edges of ⑬ to each tab of the upper part of the fuselage.

FINISHING TOUCHES

• Give the finishing touches to the plane after it dries thoroughly.

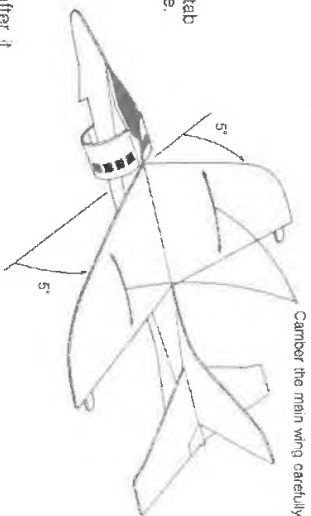
9. Camber the main wings slightly with your fingers.

10. Using the dihedral angle gauge, make sure the dihedral angle for the main wing is 5°.

11. View the plane from both the front and the back and straighten any warps or bends in the fuselage and the wings.

TEST FLIGHT

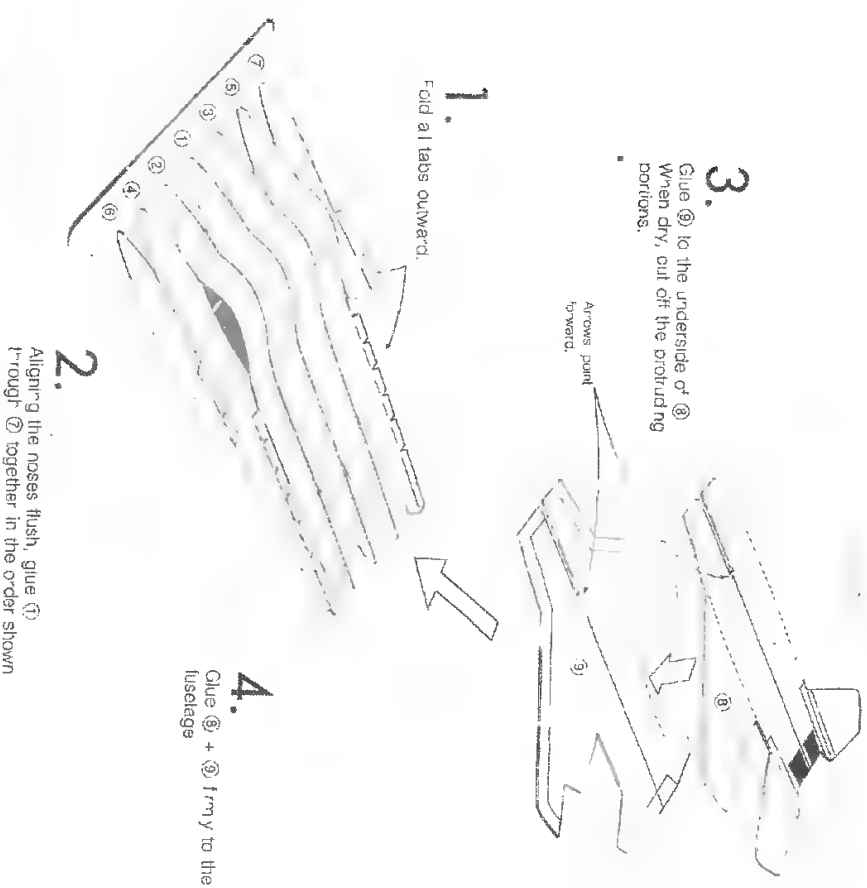
• Test fly the plane according to the Test Flight instructions for Regular Planes on pages 11 to 13.



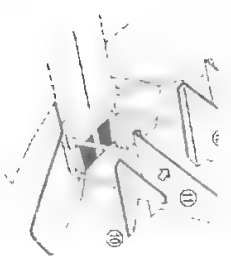
fighters since this development. Its first flight was in 1972.

GLUING INSTRUCTIONS

Glue the parts together in the order indicated.



6. Next, glue (10) to the side of (1) and (10) to the side of (2).



7. Placing a ruler along the dashed line, bend the main wing slightly upward to make a dihedral angle of approximately 5°.



FINISHING TOUCHES

- Give the finishing touches to the plane after it dries thoroughly.
- 8. Camber the main wings carefully with your fingers.
- 9. Using the dihedral angle gauge, make sure the dihedral angle of the main wing are 5° and the vertical stabilizers 90°.
- 10. View the plane from the front and the back and straighten any warps or bends in the fuselage and wings.



TEST FLIGHT

- Test fly the plane according to Test Flight instructions for Regular Planes on pages 11 to 13.

with a success. No 17-10 is still a very light, inexpensive and excellent in an air combat performance. More of these are in commission than F 15 and more countries employ this plane. Its first flight was in 1974.

GLUING INSTRUCTIONS

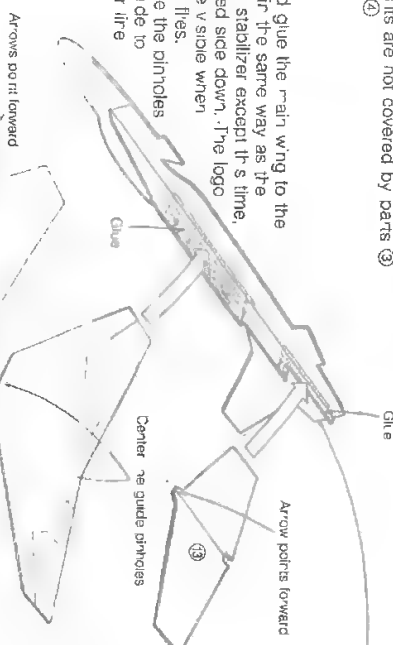
Glue the parts together in the order indicated.

1. Glue ① and ② together and dry it thoroughly

2. Cut out the two slits into which the main wing and the horizontal stabilizer will be inserted

4. Aligning the folded tab lines of ③ and ④ with the upper edges of two slits on (① + ②), glue ③ and ④ onto each side of the fuselage (① + ②) so that the slits are not covered by parts ③ and ④

3. Place a ruler along the dashed line of ③ and fold the tab outward. Do the same with part ④



5. Glue ② to the underside of ①. When dry, cut off the protruding portions

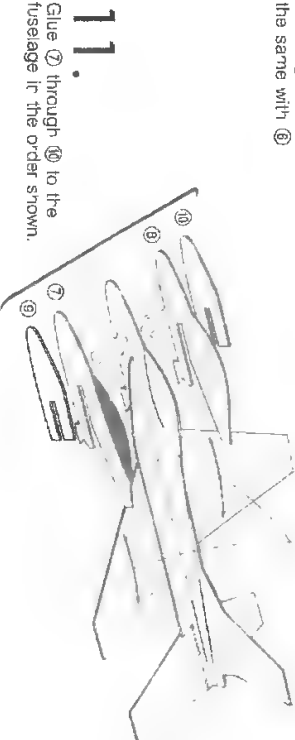
6. Make pinholes through the center guide lines so that you can find the center from the underside of the main wing.

Center guidelines: When the main wing is inserted into the fuselage, find the center part of the wing using these center guidelines

9. Place a ruler along the dashed line of ⑤ and fold it outward. Do the same with ⑥



10. Glue ⑤ and ⑥, respectively to each side of the fuselage.



11. Glue ⑦ through ⑩ to the fuselage in the order shown.

FINISHING TOUCHES

• Give the "finishing touches" to the plane after it dries thoroughly.

12. Using a ruler, make the dihedral angle of 10° or the main wing at the end of the flat tab where it is not glued. Make a dihedral angle of 10° on the horizontal stabilizer in the same manner. Place the dihedral angle gauge on them to check that the dihedral angles have been properly made.



13. Camber the main wings slightly with your fingers.

14. Bend both trailing edges of the horizontal stabilizer upward by approximately 1 - 2 mm (1/16"). Do not forget to do this, or the plane won't fly!



15. View the plane from both the front and the back and straighten any warps or bends the fuselage and wings

TEST FLIGHT

• Test fly the plane according to the Test Flight instructions for Regular Planes on pages 13.

• If your plane tends to dive down or if it flies upside - down when going upward, the reason might be insufficient bending on the trailing edges of the horizontal stabilizer. Keep bending the part just a fraction more until you get a straight flight.

Before being realized in war planes, its mass production is expected in the late 1930's

GLUING INSTRUCTIONS

Glue the parts together in the order indicated

2.

Aligning the noses flush, glue through ① together in the order shown

4.

Spread glue on the tabs on the fuselage. Then, glue the fuselage to the main wing ② inserting both the hook for the catapult and the rear projector into the slots. In order to glue the main wing accurately, draw the center line on the underside of the main wing and glue the main wing to the fuselage aligning the center line of the main wing with that of the fuselage. (Refer to [NOTE] on page 48.)

FINISHING TOUCHES

- Give the finishing touches to the plane after it dries thoroughly
- 7. Turning up gently the wing from the wing root, make a dihedral angle of approximately 8°.
- 8. Bend both trailing edges of the wing up by approximately 3 mm (1/8"). Don't forget this, or the plane won't fly.
- 9. View the plane from both the front and the back and straighten any warps or bends in the fuselage and the wing.

TEST FLIGHT

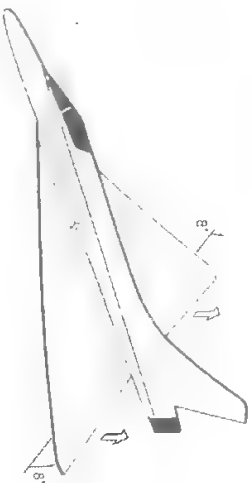
- Test fly the plane according to the Test Flight instruction for Delta wing plane on page 13

5. Fold ③ to the underside of the main wing covering the rear projector of the fuselage.

3. Cut out the two slots on the main wing ② (Use a cutter.)

1. Fold the tabs outward.

5. Fold ③ with the printed side outward as shown.



Before being realized in war planes, its mass production is expected in the late 1930's

GLUING INSTRUCTIONS

Glue the parts together in the order indicated



4.

Fold the "cockpit" ⑩ slightly inward along its center line as a guide. Swell the whole of the cockpit into a curve to complete its oval shape. Then, glue the tab as shown.

5. After the cockpit ⑩ dries thoroughly, press its fringe down carefully with your fingers. Refer to the figure of X-X cross section

6.

Spread glue around the bottom edge of the cockpit ⑩. Apply it to the printed oval shape on the upper side of the wing ⑦. Press it down with your fingers for a few minutes until it dries.

2.

Aligning the noses flush, glue ① through ③ together in the order shown.

1. Fold all tabs outward.

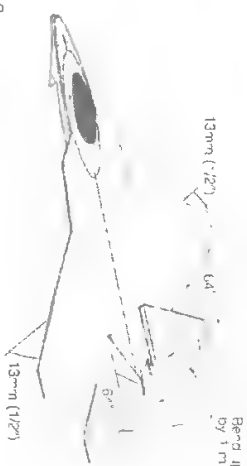


3. Glue the wing ⑦ to the fuselage aligning the center line of ⑦ with that of the fuselage.

- Give the finishing touches to the plane after it dries thoroughly.
- 8. Bend the right and left trailing edges of the main wing slightly upward 13 mm (1/2"). Refer to the figure
- 9. Bend both trailing edges of the horizontal stabilizers upward by 1 mm (1/32"). Refer to the figure
- 10. Lift the two vertical stabilizers respectively outward (64°). Put the gauge between the vertical stabilizers to make sure of the angles
- 11. View the plane from both the front and the back and straighten any warps or bends in the fuselage and the main wing.

TEST FLIGHT

- Test fly the plane according to the Test Flight instructions for Regular Planes on pages 11 to 13.



Because the shape of the central part of the wing resembles a so-called saddle shaped surface in math, I call this type of wing a MOST (Modified Saddle Type) wing. It is constructed as follows.

CAUTION 1

The parts numbers used below are for the Racer 533. As the part numbers and dihedral angle may change according to the model, be careful when you use these instructions for other models.

CAUTION 2

When constructing the Racer 534, start with step 0.

Upside of
the front.

4. Apply glue on half of the underside of ⑬ and glue onto ⑩ + ⑫ (The arrow should point toward the dot.)

5.

In the same manner as in 4 attach ⑨ + ⑪ to the other side of ⑬.

1. Glue parts ① and ② to the undersides of parts ⑨ and ⑩ respectively. When dry, cut off the protruding portions.

6. Placing the dihedral angle gauge on the main wing check that the dihedral angle is 15°.

7. Putting to bed sands under the main wing will be conducive to fast and thorough drying.

Dots toward the front.

2. Using a ruler along the center line, fold part ⑬ from the center line to make a 15° angle on both sides. Then curve it carefully with your fingers to fit the curved edge of the fuselage top, where the main wings are to be attached.

Folded paper stands

Arrow points toward

Dots toward the front

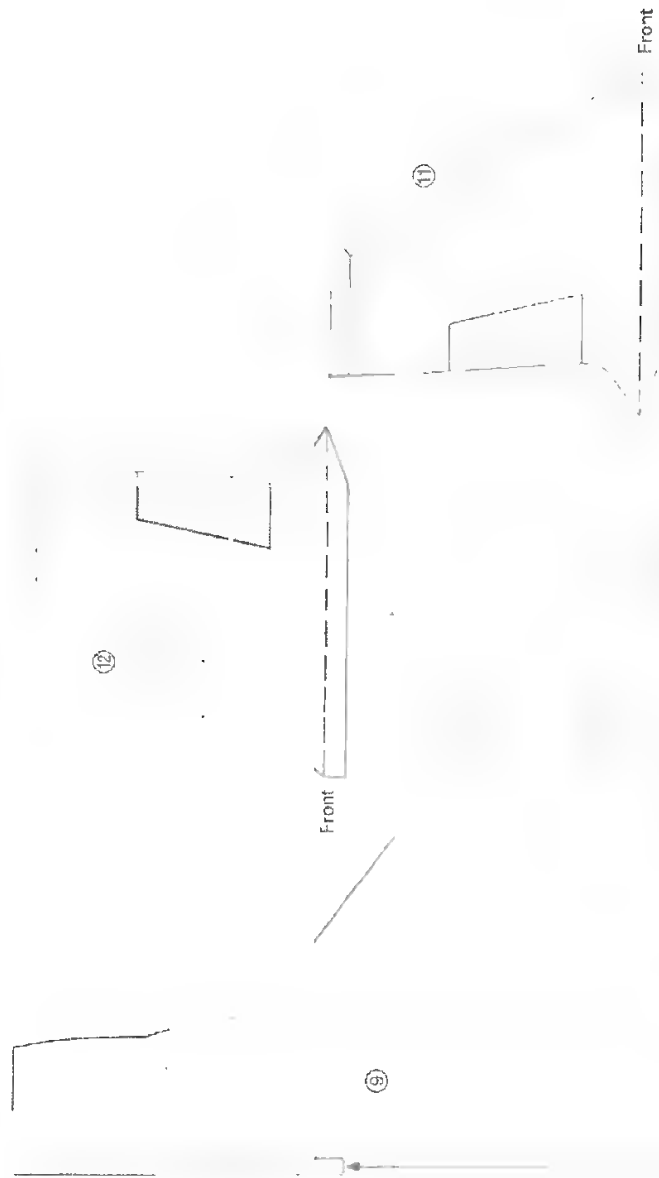
0. Cut parts ⑨ and ⑪ along the solid lines up to the dashed lines. Then tracing a ruler along the dashed line, bend the resulting strips slightly upward.

Dr. Yasuaki Ninomiya, born in 1926 has been fascinated by airplanes since early childhood, an interest which later developed into his present hobby and business of designing and building paper airplanes.

He received his doctorate in 1962 in the field of microwave measurement theory. He is recognized as a pioneer in microwave communications engineering from his work as a leading researcher at the Electrical Communications Laboratory of the Nippon Telegraph and Telephone Corporation from which he retired in 1984. At the invitation of the Italian government, he served as principal advisor of the joint Japan-Italian Electronic Communications Research Center from 1975 to 1977. He is currently a member of the Japan Industrial Designer's Association and has been a member of the Good Design Committee of the Ministry of International Trade and Industry.

Drawing upon this distinguished background and expertise, Dr. Ninomiya designs aviationally sound and sleek, high performance paper planes based upon principles of industrial design and mechanical functionality. Convincing evidence of his talent is his garnering of the grand prizes in the Duration Flight and Distance Flight categories of the 1st International Paper Plane Contest (Pacific Basin Division) in San Francisco in 1967. He later served as a judge in the 2nd Great International Paper Plane Contest, held in Seattle, Washington in May 1985.

Dr. Ninomiya is widely recognized as a respected authority on paper planes. He has designed a wide variety of planes ranging from racer type models to profile models. He also holds a private plane operator's license and tries to get into the pilot's seat of his Cessna 182 whenever his busy schedule permits.

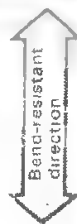


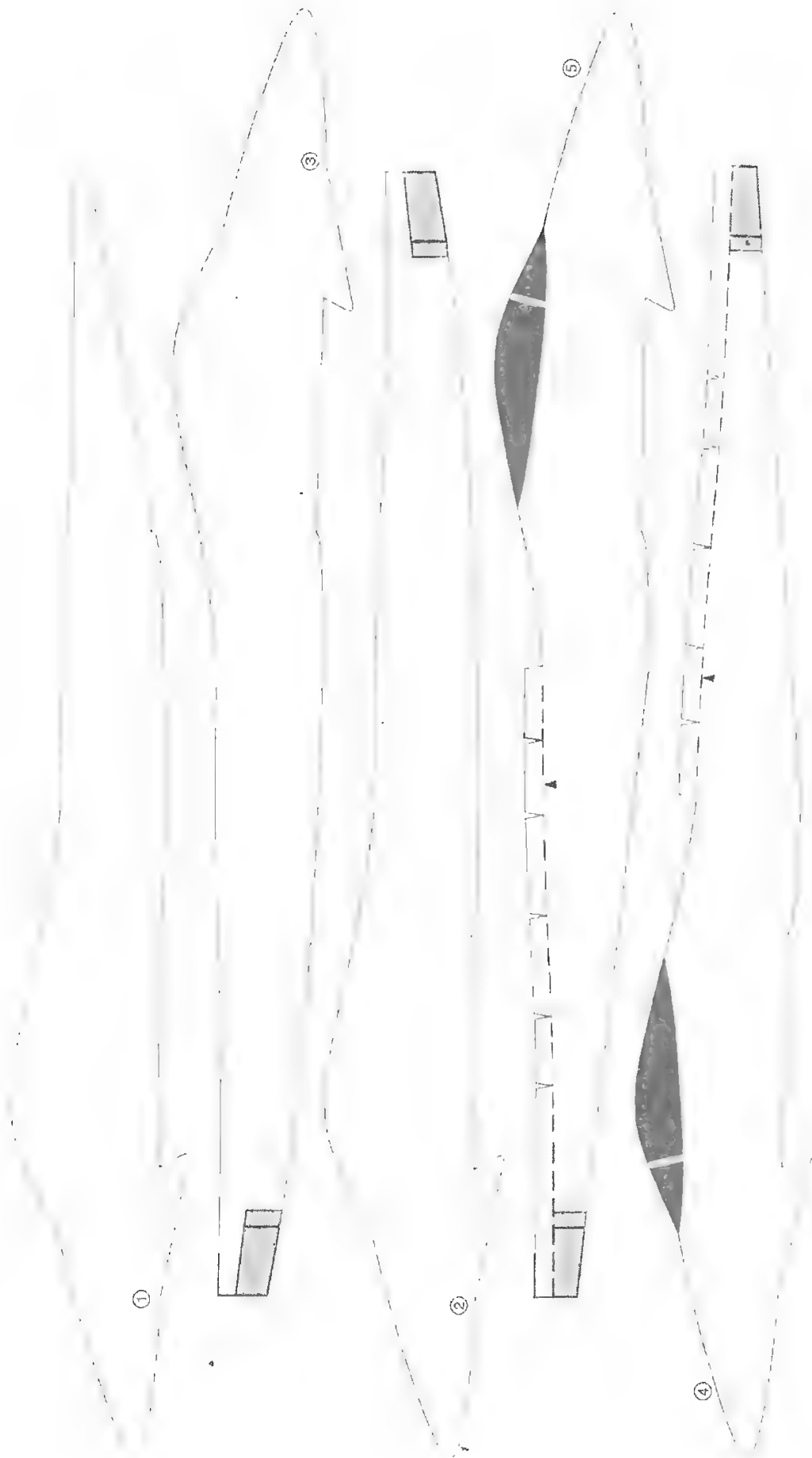
WhiteWings®

McDonnell Douglas
F-15 EAGLE



--- Fold with dashed line inside.
↑ Arrows point forward





WhiteWings®

McDonnell Douglas F-15 EAGLE



© 1992 Yasuaki Ninomiya (All rights reserved. Reproduction prohibited.)

⑤

⑧

⑦

⑩

⑬

White wings

5°
Angle gage

Glue on vertical stabilizers here.

Front

Front



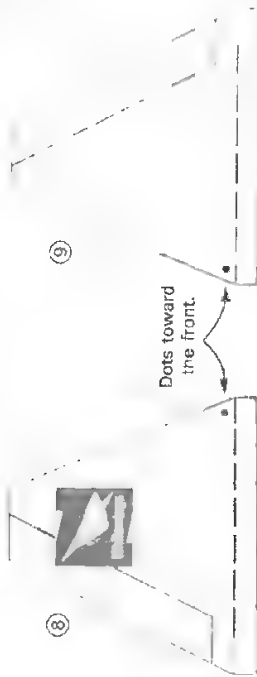
①



②



③



④

Fold with dashed line inside
Arrows point forward



Angle range

64°

64°

WhiteWings[®]

Lockheed F-22



Arrow points forward.

10

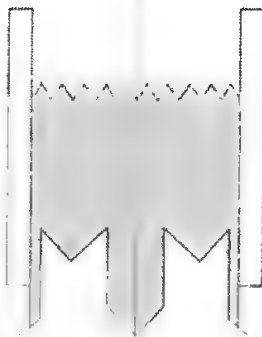


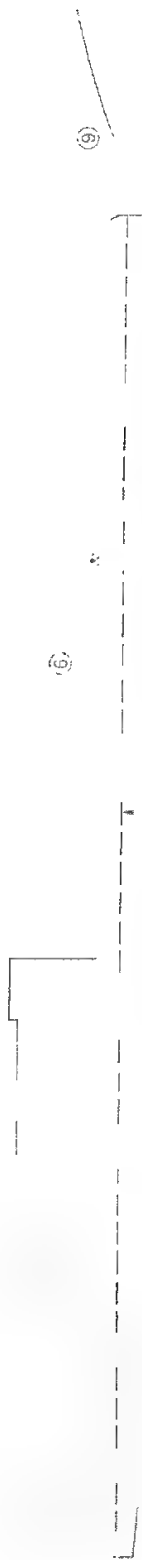
7

6

5

WhiteWings





(9)



(5)

(10)



(7)

-7°

Dihedral angle gauge for horizontal stabilizer

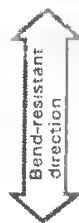
G.D. F-16 Fighting Falcon

Dihedral angle gauge for main wing

10°

10°

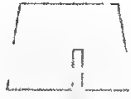
--- Fold with dashed line inside.
↑ Arrows point forward



WhiteWings® General Dynamics F-16 FIGHTING FALCON

© 1992 Yasuaki Ninomiya (All rights reserved. Reproduction prohibited.)





④

②



③

①



Arrow points forward.

(12)

When the main wing is inserted into the fuselage find the center part of the wing using these center guidelines

Center guidelines
Arrow points forward.

(13)

Center guidelines

Center guidelines
Arrow points forward.

(11)

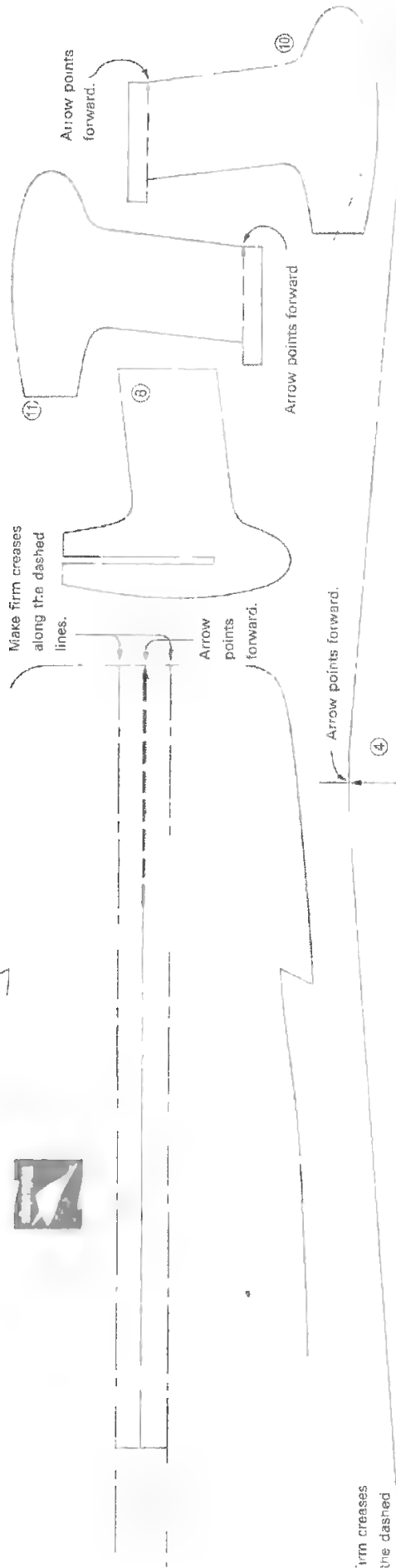
Center guidelines

Arrow points forward

WhiteWings®

General Dynamics F-16 FIGHTING FALCON



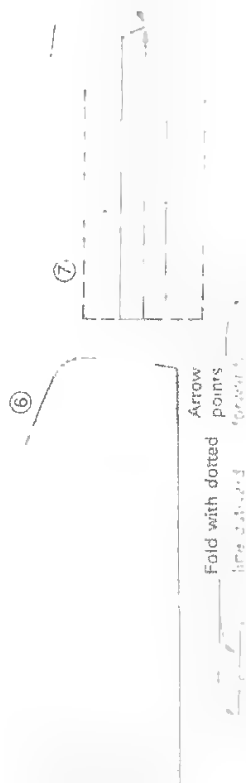


Firm creases the dashed

Arrow points forward.

points forward.

15° 15° Dihedral angle gauge



WhiteWings® TriLinear 705



1
Main
win

Engine

Vertical
stabilizer

Horizontal
stabilizer

②

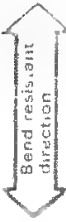
Arrow points forward. Outer lines to make the dihedral angle.

WhiteWings

③

④

⑤



Bend resistant direction
Fold with dashed line inside
Arrows point forward.



⑥

Make firm creases along the dashed lines.

⑤

Arrow points forward.

Arrow points forward.

④

firm creases the dashed

points d.

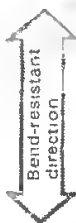


WhiteWings®

TriLinear 704



Fold with dashed line inside
Arrows point forward.



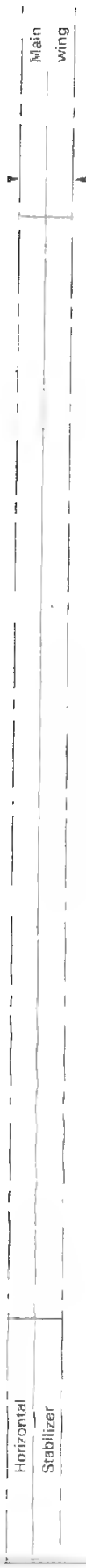
⑦

Arrow points forward.

Cut along the solid lines up to the dashed line.

Cut along the solid lines up to the dashed line.

①

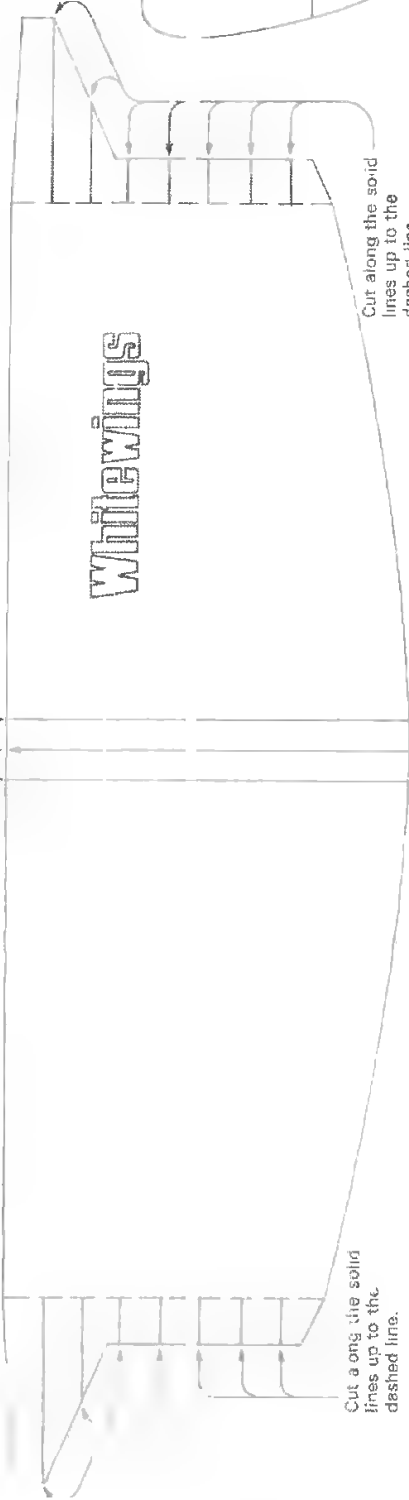


②



③

Arrow points forward.



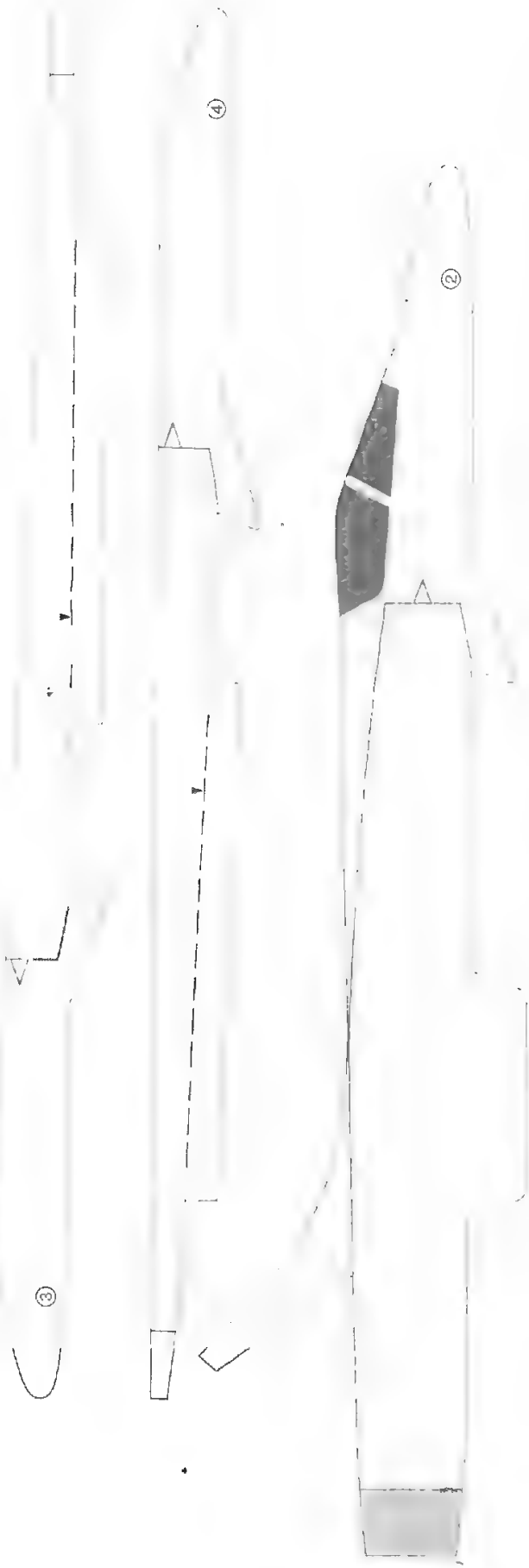
④

Arrow points forward.



Cut along the solid lines up to the dashed line.

Cut along the solid lines up to the dashed line.

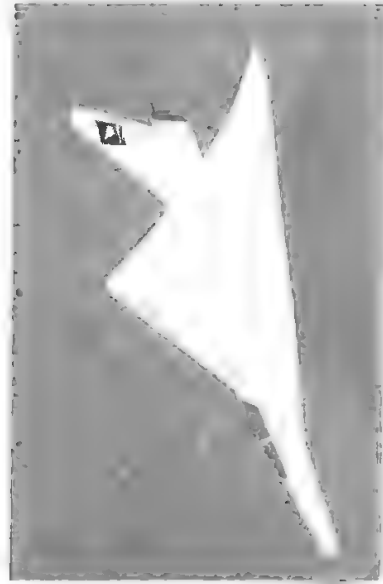


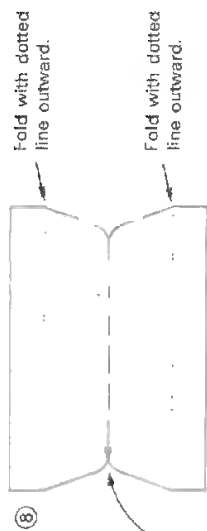
Fold with dashed line inside.
Arrows point forward



WhiteWings® Dassault
MIRAGE 2000

© 1992 Yasuaki Ninomiya (All rights reserved. Reproduction prohibited.)





Arrow points forward.

8°

Dihedral angle gauge

8°

WhiteWings

7

12

5

Arrow points forward.

10

7

4

6

11

Arrow points forward.

Dihedral angle gauge

5°

5°

--- fold with dashed line inside.
↑ Arrows point forward.



WhiteWings® Hawker Siddeley
HARRIER

© 1992 Yasuaki Ninomiya (All rights reserved. Reproduction prohibited.)



WhiteWings

Arrow points forward.

Arrow points forward.

Cut along the solid line up to the dashed line.

⑥

②

①

③

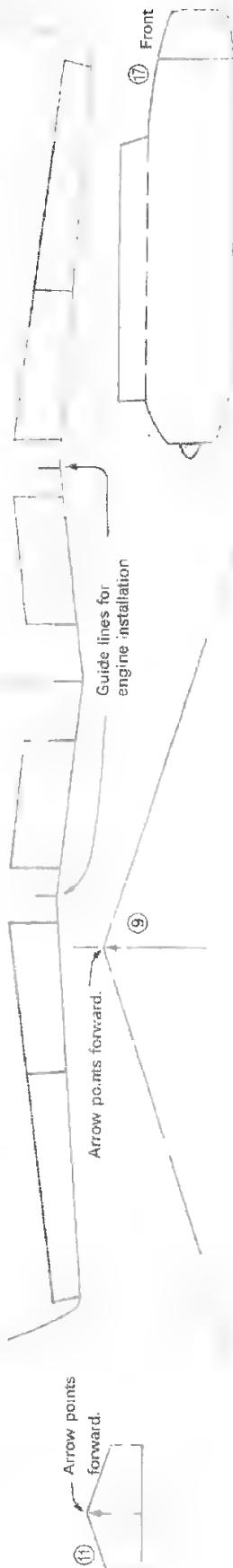
⑤

1



WhiteWings

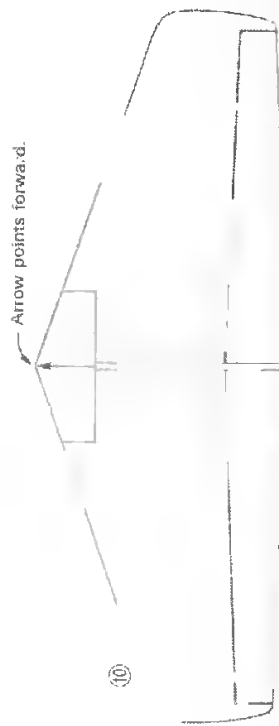
⑧



--- Fold with dashed line inside
↑ Arrows point forward

WhiteWings®

Messerschmitt
Me-262



© 1992 Yasuaki Kinomiyu (All rights reserved. Reproduction prohibited)



③



①

②

10°
Dihedral angle gauge
10°

④

Front

⑬

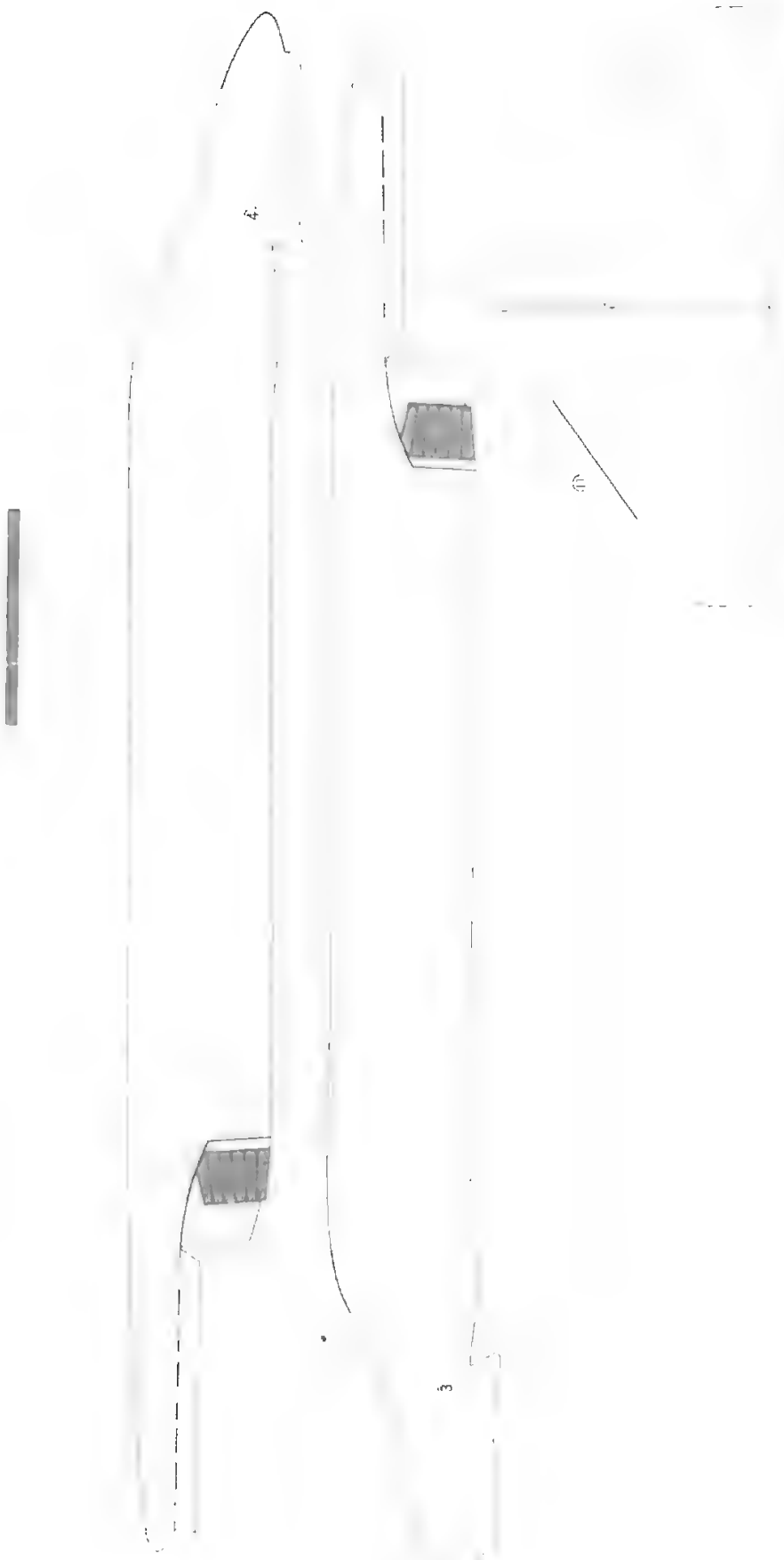
⑤

⑦

Front

⑫

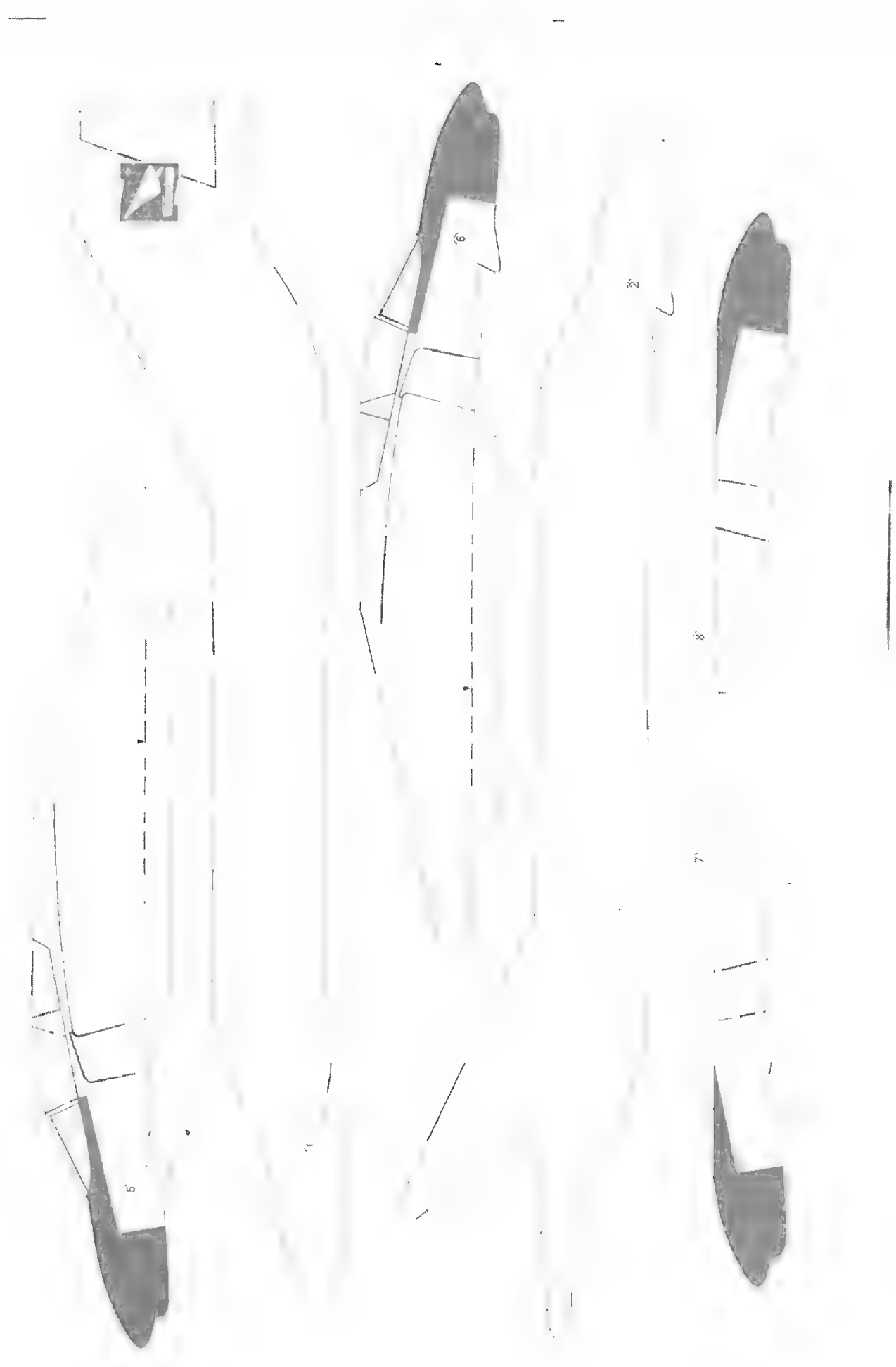
⑥



— Fold with dashed line inside.
+ Arrows point forward



WhiteWings® McDonnell Douglas F-4
PHANTOM II



WhiteWings®

North American F-86
SABRE

WhiteWings

Arrow points forward.

Arrow points forward.

10° 7°
Dihedral angle gauge

--- Fold with dashed line inside
↑ Arrows point forward

Bend resistant
direction

Arrow points forward.

⑩

⑪



⑥

④

②



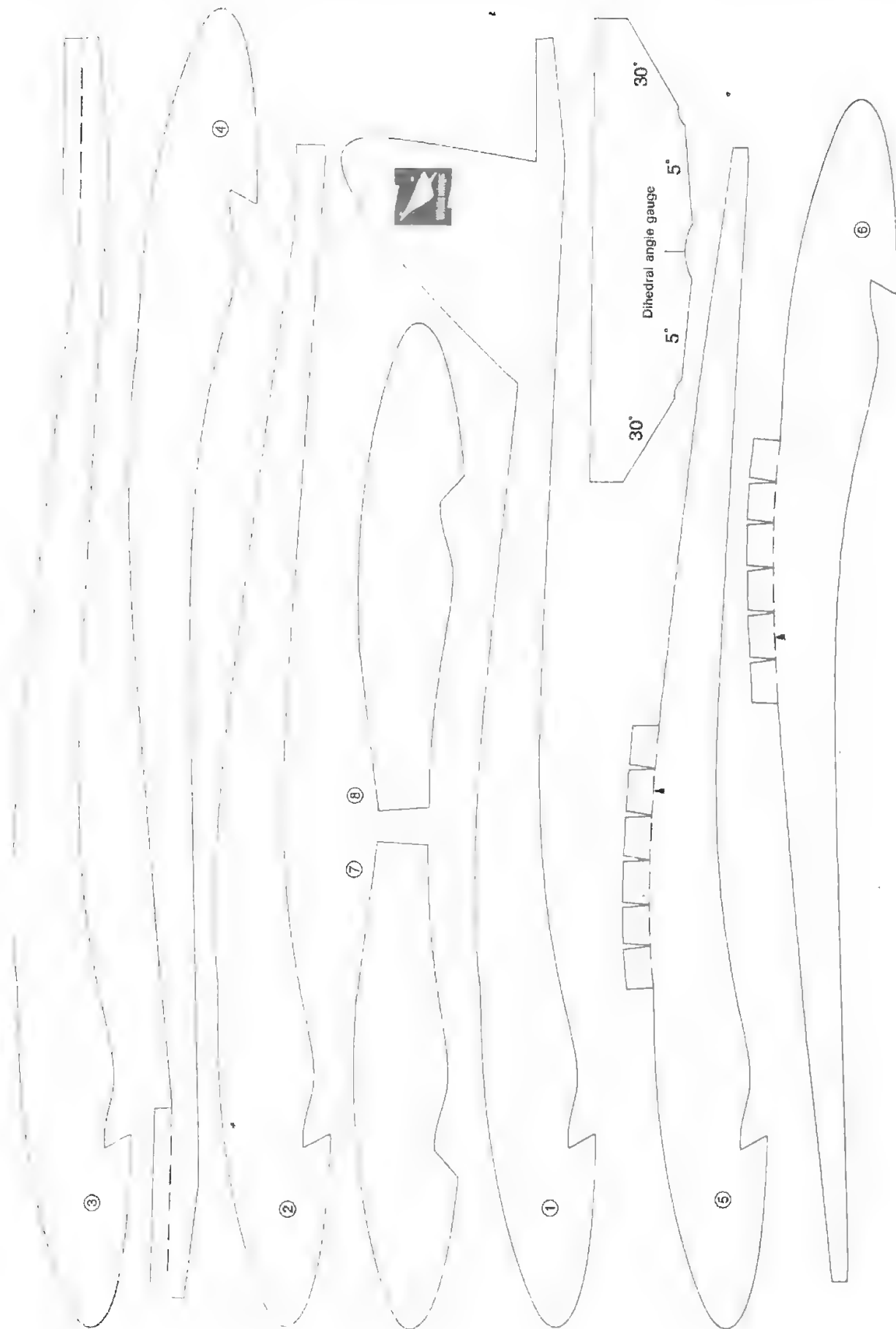
①

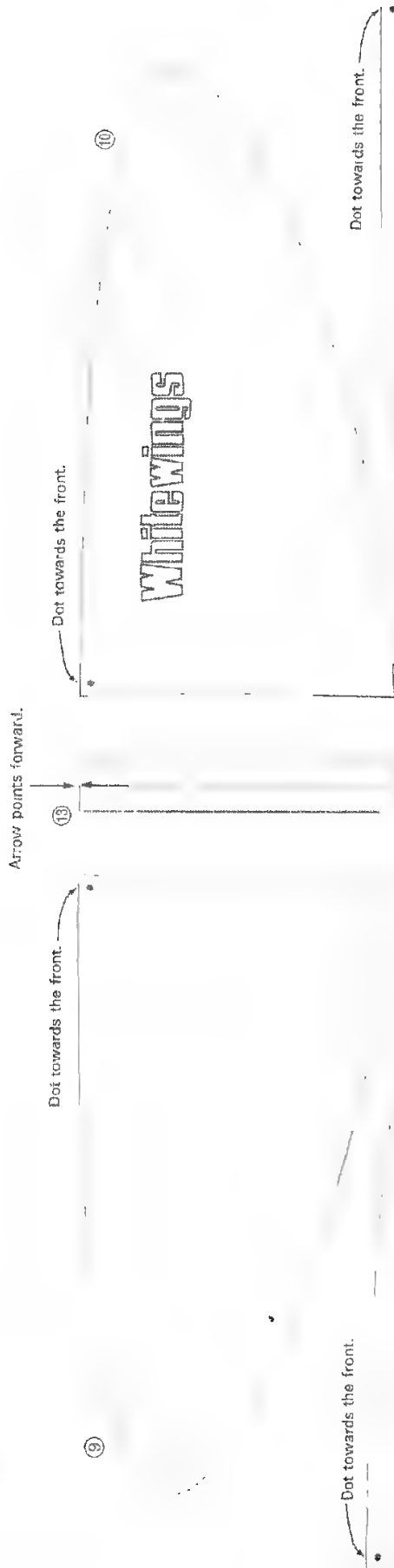


③

⑤

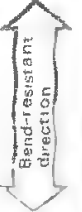
⑦





(14)

--- Fold with dashed line inside
↑ Arrows point forward.



WhiteWings® Racer 533 Sparrowhawk





③



④

②

⑦

⑧



①

⑤

15° Dihedral angle gauge 15°



⑥

③

②

⑦

⑧

①

⑤

④



15° Dihedra angle gauge 15°

⑥

Arrow points forward.

WhiteWings

Arrow points forward.

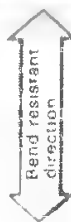
⑨



⑩



Fold with dashed line inside
Arrow points forward



WhiteWings[®] Racer 532
Dragonfly

© 1992 Yasuaki Ninomiya (All rights reserved. Reproduction prohibited.)

②



③



④

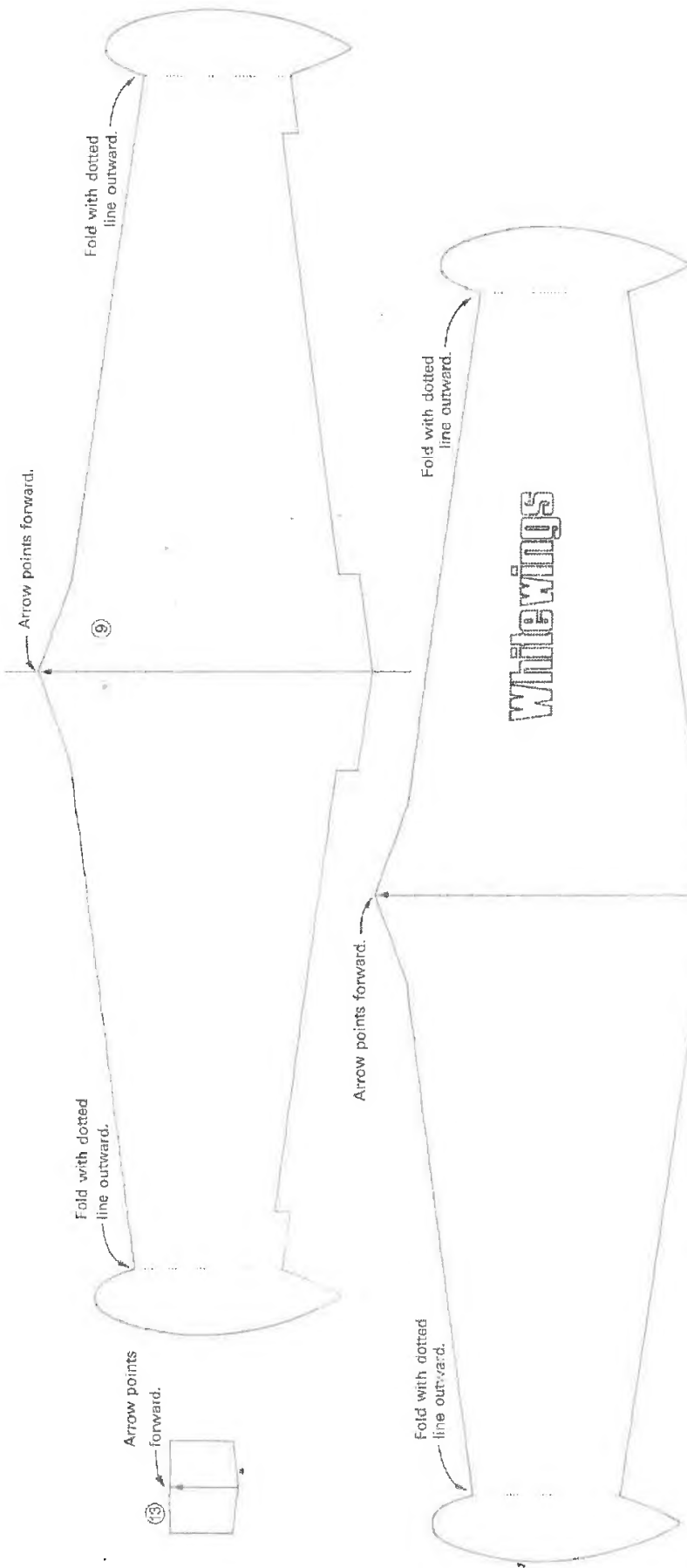


⑪
Arrow points forward.

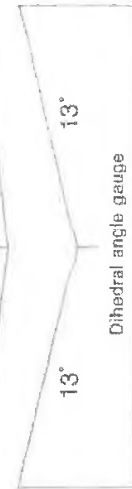
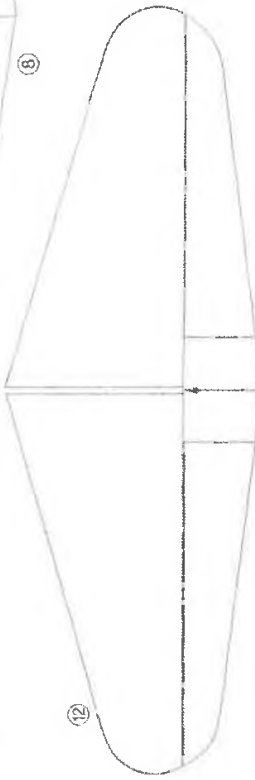
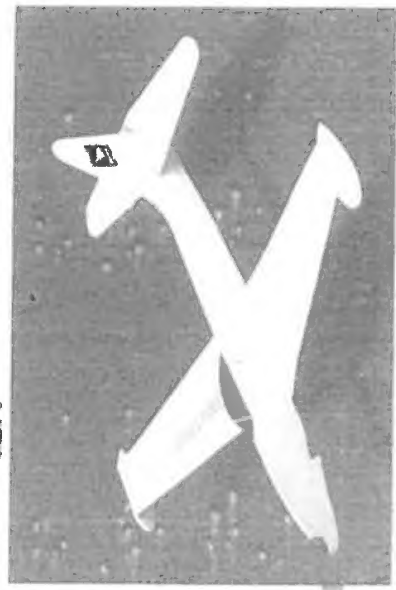


⑤



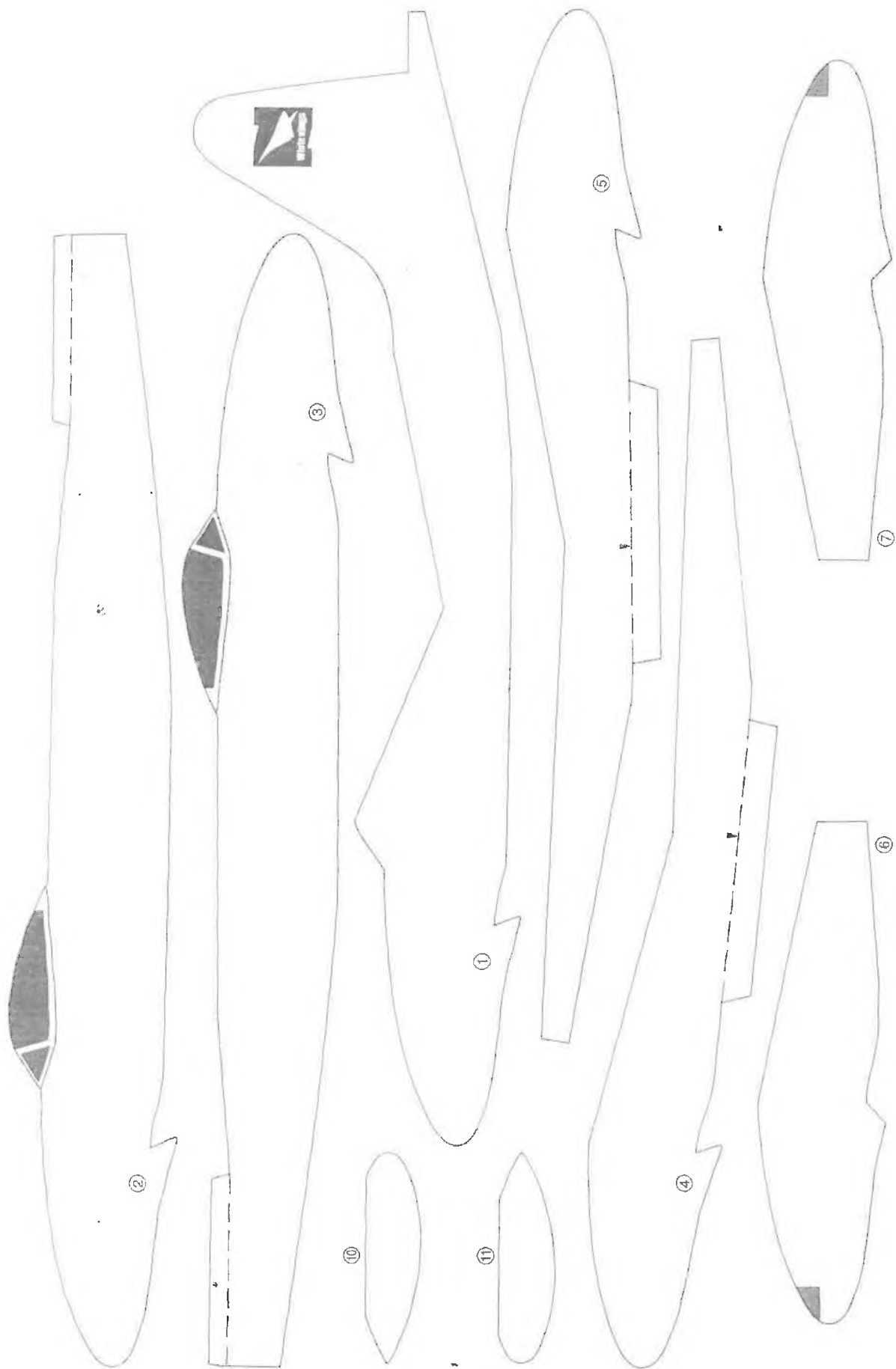


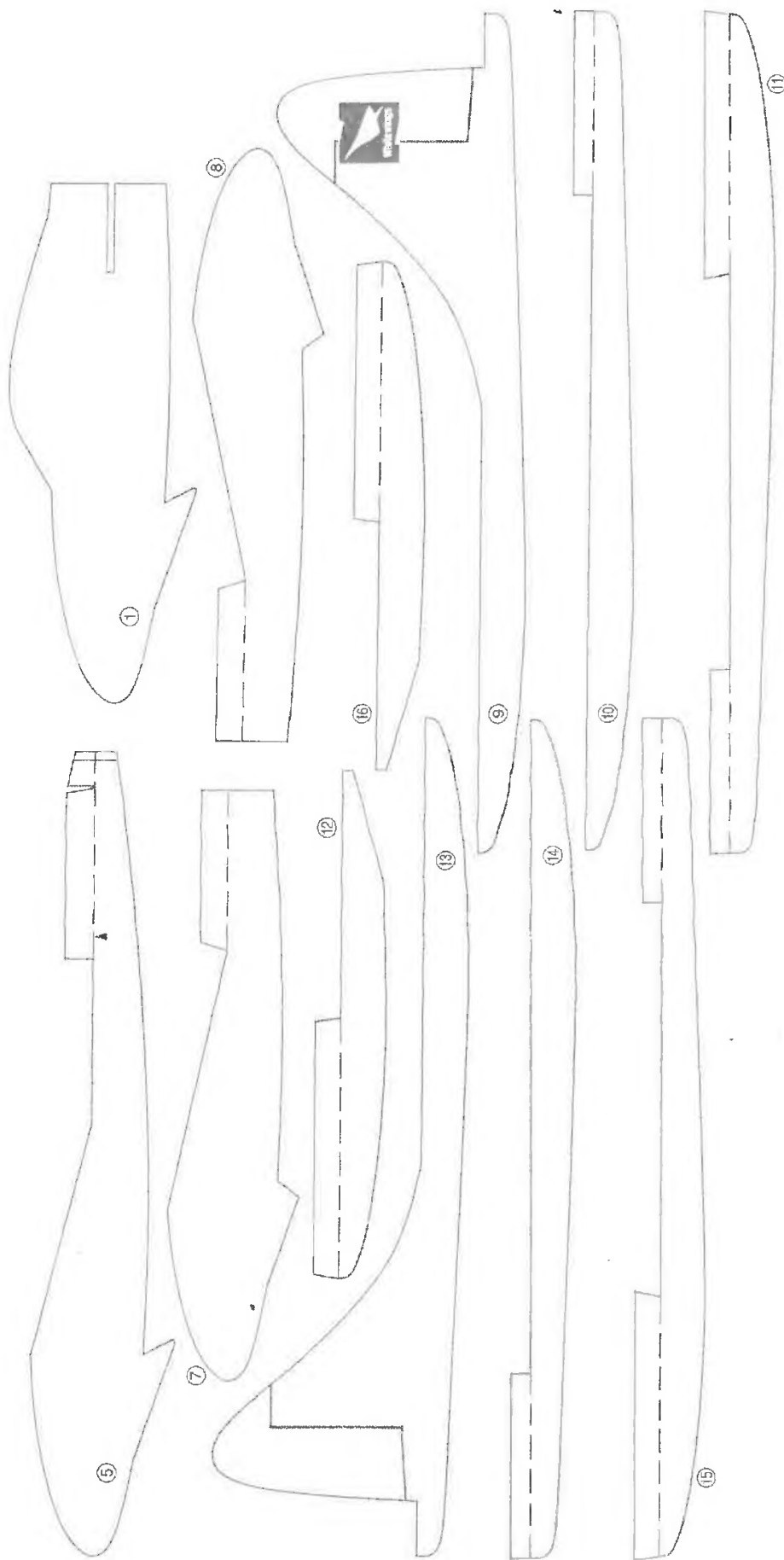
WhiteWings® Lockheed P-80 SHOOTING STAR



Fold with dashed line inside.
Arrows point forward.







--- Fold with dashed line inside.
 ↑ Arrows point forward.



WhiteWings® De Havilland
 VAMPIRE

